

**AMENDMENTS TO THE CLAIMS**

This listing of claims will replace all prior versions, and listings, of claims in this application.

**Listing of Claims:**

- 1-3. (Cancelled)
4. (Currently Amended) A flooring comprising a polymeric binder, said binder being a mixture of both:
  - i) at least one polyolefin with a density  $< 0.910 \text{ g/cm}^3$ , wherein the at least one polyolefin is at least partially cross-linked, wherein the at least one polyolefin is a mixture of at least two ethylene copolymers, wherein the ethylene copolymer mixture comprises a copolymer (a) as the main polymer with a density of  $0.89 - 0.91 \text{ g/cm}^3$  and a copolymer (b) to control rheology and elasticity with a density of  $0.86 - 0.88 \text{ g/cm}^3$  and a melt flow index (MFI)  $> 3$ ; and
  - ii) at least one grafted copolymer, wherein the at least one grafted copolymer is maleic acid anhydride grafted HD polyethylene, wherein the proportion of the at least one grafted copolymer in relation to the total weight of the polymeric binder is 5% to 25% by weight, and wherein the polymeric binder is cross-linked with (a) at least one cross-linking agent based on an organic peroxide and, optionally, (b) at least one co-cross-linking agent chosen from an isocyanuric acid derivative or an acrylate or a methacrylate derivative derived from a polyol.
5. (Previously Presented) The floor covering as claimed in Claim 4, wherein the copolymers (a) and (b) are present at a weight ratio of 4:1 to 3:2.
6. (Previously Presented) The floor covering as claimed in Claim 4, wherein the copolymers (a) and (b) are copolymers of ethylene and octene.

7-8. (Cancelled)

9. (Previously Presented) The floor covering as claimed in Claim 4, wherein the at least one grafted copolymer comprises a degree of grafting of 1% to 5% by weight.

10-12. (Cancelled)

13. (Previously Presented) The floor covering as claimed in Claim 4, which further comprises a filler, a pigment, a processing aid, an antioxidant, a static eliminator, a UV stabilizer or a slip agent.

14. (Previously Presented) The floor covering as claimed in Claim 13, wherein the filler is a mixture of platelet-shaped and crystalline mineral intergrowths.

15. (Previously Presented) The floor covering as claimed in Claim 4, the polymeric binder further comprising one or more inorganic pigments to produce a variable color pattern and a homogeneous design.

16. (Withdrawn) Process for producing a floor covering as claimed in Claim 1, comprising the provision of a substrate in the form of a strip and the application of the elastomers defined in Claim 1 to one side of the substrate.

17. (Withdrawn) Process for producing a floor covering as claimed in Claim 1, comprising the following steps:

- (a) compounding of the polymeric material defined in Claim ~~[[1]]~~4 to produce a ground or granulate material;
- (b) wetting of particles with a solution containing at least one organic peroxide free from aromatic hydrocarbons and possibly one or several co-cross-linking agents and possibly process oil, wherein the particles contain the above-defined

polymers, which form the polymeric binder of the floor covering according to the invention, either cross-linked or partially cross-linked in the form of a ground or granulate stock,

- (c) heating of the particles to a temperature at which the peroxide has sufficiently long stability, wherein the particles are subsequently precompacted and shaped into a flat product, and
  - (d) pressing of the flat product thus obtained in a suitable apparatus at a temperature at which the half-life of the peroxide is reduced such that cross-linking initiated by the peroxide simultaneously occurs to obtain a flat end product.
18. (Withdrawn) Process as claimed in Claim 17, wherein the wetting of the particles is carried out such that, in a first step, the particles are wetted and mixed with one or several co-cross-linking agents and possibly process oil and subsequently, in a second step, are wetted and mixed with at least one organic peroxide free from aromatic hydrocarbons and possible process oil.
19. (Withdrawn) Process as claimed in Claim 17, wherein the mass in step (a) is compounded, in addition, with a chemical expanding agent.
20. (Withdrawn) Process as claimed in Claim 19, wherein, after cross-linking under pressure in step (d), foaming of the material is effected by releasing the pressure at a further increased temperature.
21. (Withdrawn) Process as claimed in Claim 19, wherein the chemical expanding agent is a sulfohydrazide or azodicarbonamide or a combination thereof.
22. (Withdrawn) Process as claimed in Claim 17, comprising the following steps:
- (a) compounding of the polymeric material defined in Claim 1 together with additives, fillers, peroxide, co-cross-linking agents and a chemical expanding agent;

- (b) partial cross-linking and foaming of the mixture in an extruder;
  - (c) discharging of the foam through an extruder nozzle into a water bath and granulating of the slab thus formed; and
  - (d) further grinding and drying of the granulate, which is then wetted with a mixture of liquid peroxide, co-cross-linking agents and mineral oil, wherein the ground stock is subsequently distributed over a release paper and covered with an anti-adhesive paper and is fed into a heated press, with the temperature and pressure adjusted such that the particle bed along the heating surfaces becomes plastic and melts to form a closed surface and at the same time the temperature initiates the decomposition of the peroxide, whereby the outer layers simultaneously cross-link, so that a floor covering with integral structure is obtained.
23. (Withdrawn) Process as claimed in Claim 19, wherein the back of the covering is ground for sizing in a post-treatment step.
24. (Withdrawn) Process as claimed in Claim 17, wherein the structure of the cross-linked material is revealed after exposing the surface by grinding and/or splitting.
25. (Cancelled)